IN THE DRAWINGS:

Please amend Fig. 3 as indicated on the attached sheet. A replacement sheet for Fig. 3 is also provided.

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have cancelled claims 4, 10, 13-18 and 22, without prejudice, and amended claims 1, 5, 7, 11, 13, 17, 19 and 23 so as to further distinguish the present invention over the cited prior art. In addition, new claims 25-32 have been added to recite additional aspects of the present invention not previously cited. No new matter has been added.

With regard to the objection to the specification, Applicants submit herewith a new page 6 in which the text is shifted downward so that it does not "cut-off". Also, it is noted that page 2 of the Office Action mentions a rejection under 35 U.S.C. § 112, but no claim numbers are identified and no reasons for rejection are provided. As such, it is believed the paragraph was inadvertently included in the Office Action.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art references.

II. The Rejection Of Claim 1 In View Of Robles

Claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by USP Pub. No. 2004/0005089 to Robles. For the following reasons, Applicants respectfully submit that claim 1, as amended, is patentable over Robles.

Claim 1, which relates to a method of generating complementary masks for use in a multiple-exposure imaging process, has been amended to recite the additional steps of: (1) generating a model defining the imaging performance of said multiple-exposure lithographic imaging process, and (2) determining the amount of shielding to be applied in the shielding step

by utilizing the model. Thus, claim 1 has been amended to recite that the process of shielding the vertical edges in the horizontal mask and the horizontal edges in the vertical mask is performing/determined by utilizing a calibrated model of the imaging system. In other words, the present invention applies shielding to both dipole reticles using a calibrated model of the imaging system. Prior to the present invention, rule based techniques were typically utilized to apply shielding to the dipole reticles. Such rule based techniques require a complex rule base and multiple stages of shielding application, and typically provide inferior results as compared with the model based application of shielding as claimed by the present invention.

Turning to the cited prior art, Robles discloses a technique wherein feature edges are divided into fragments and then each fragment is assigned a contrast classification, which indicates how well the fragment will image. The contrast number of a given fragment is determined by calculating the intensity profile for the fragment. Once all the fragments are classified, resolution enhancement techniques (RETs) are applied to the fragments based on the contrast classification of the given fragment. Thus, Robles appears to disclose a technique in which edge segments are classified based on contrast, and then RET techniques are applied to the edges based on the contrast classification following some defined set of rules. It is noted that while Robles indicates that the use of dipole illumination is one possibility, Robles does not appear to discuss how the shielding in the vertical and horizontal masks is applied.

As such, Robles does not appear to disclose or suggest either of the following steps recited by claim 1, namely, (1) generating a model defining the imaging performance of said multiple-exposure lithographic imaging process, and (2) determining the amount of shielding to be applied in the shielding step by utilizing the model.

Accordingly, as anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, ***Kalman v. Kimberly-Clark Corp.***, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), for the foregoing reasons, it is clear that Robles does not anticipate amended claim 1, or any claim dependent thereon.

III. The Rejection Of Claim 7-12 And 19-24 Under 35 U.S.C. § 102

Claims 7-12 and 19-24 were rejected under 35 U.S.C. § 102(e) as being anticipated by either USP No. 6,553,562 to Capodieci or USP No. 6,851,103 to Van Den Broeke. For the following reasons, Applicants respectfully submit that claims 7, 19 and 24 are patentable over Capodieci and Van Den Broeke.

First, it is noted that each of claims 7 and 19 have been amended in a manner similar to claim 1 as discussed above.

Turning to the cited prior art, Capodieci discloses utilizing a rule-based system for applying the shielding to the vertical and horizontal masks, which entails identifying critical horizontal and vertical features, as well as areas where such features interconnect, and then applying shielding based on predefined rules (*see*, Capodieci, col. 9, lines 12-49). Thus, Capodieci neither discloses nor suggests utilizing a model based approach for applying shielding to the vertical and horizontal masks.

Van Den Broeke discloses a method for decomposing a target pattern into phase areas and chrome areas in the mask reticle utilized in the imaging process. Van Den Broeke appears silent with respect to applying shielding to vertical and horizontal masks utilized in a multiple

exposure process, much less utilizing a model based approach for applying shielding to the vertical and horizontal masks.

Accordingly, as anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, ***Kalman v. Kimberly-Clark Corp.***, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), for the foregoing reasons, it is clear that neither Capodieci nor Van Den Broeke does not anticipate amended claim 7, 19 or 24, or any claim dependent thereon.

IV. The Rejection Of Claim 1-12 And 19-24 Under 35 U.S.C. § 103

Claims 1-12 and 19-24 were rejected under 35 U.S.C. § 103 as being unpatentable over either USP No. 6,553,562 to Capodieci or USP No. 6,851,103 to Van Den Broeke in view of USP No. 6,851,103 to Toublan. For the following reasons, Applicants respectfully submit that claims 1, 7, 19 and 24 are patentable over any combination of the foregoing prior art references.

First, as noted above, neither Capodieci nor Van Den Broeke disclose or suggest (1) generating a model defining the imaging performance of said multiple-exposure lithographic imaging process, and (2) determining the amount of shielding to be applied in the shielding step by utilizing the model. Toublan does not cure this deficiency. Toublan appears to relates to a multi-exposure process that provides for imaging clear and dark features in the multi-exposure process. However, Toublan appears silent with respect to any technique for providing shielding to vertical and horizontal masks utilized in a multiple exposure process, much less utilizing a model based approach for applying shielding to the vertical and horizontal masks. Thus, the combination of Capodieci, Van Den Broeke and Toublan does not disclose or suggest the claimed invention.

As each and every limitation must be disclosed or suggested by the cited prior art in order to establish a *prima facie* case of obviousness (*see*, M.P.E.P. § 2143.03), and for at least the foregoing reasons the combination of Capodieci, Van Den Broeke and Toublan fails to do so, it is respectfully submitted that the present invention, as recited by the amended claims, is patentable over the cited prior art.

V. All Dependent Claims Are Allowable Because The Independent Claims From Which They Depend Are Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co., 819 F.2d at 1100, 1108 (Fed. Cir. 1987)*. Accordingly, as each of the independent claims are patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also in condition for allowance.

VI. Conclusion

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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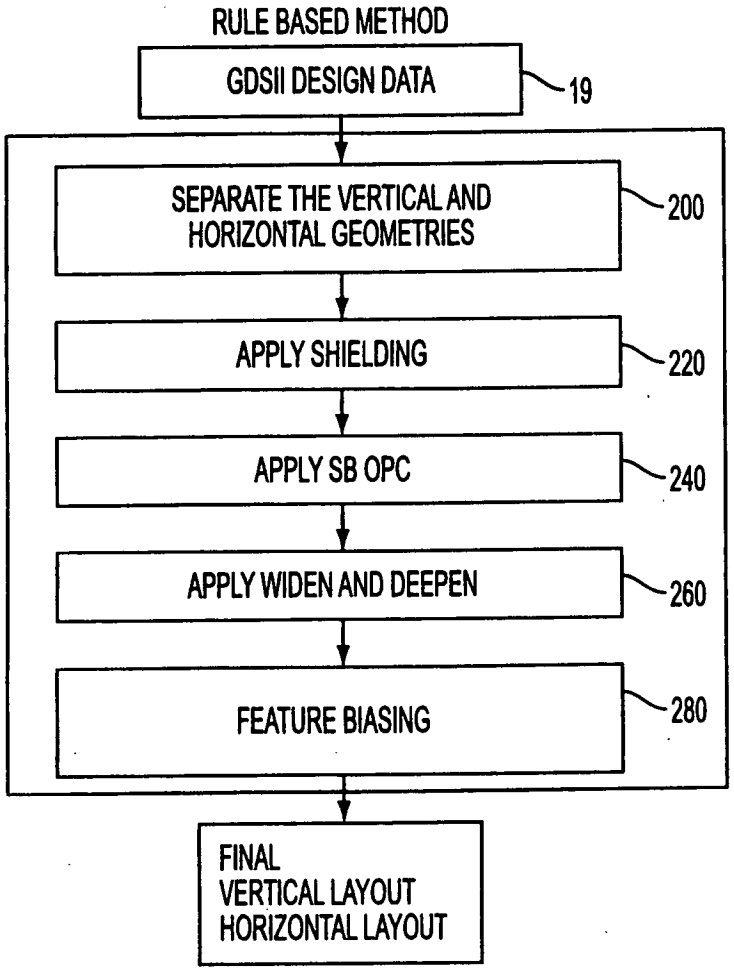

FIG. 2

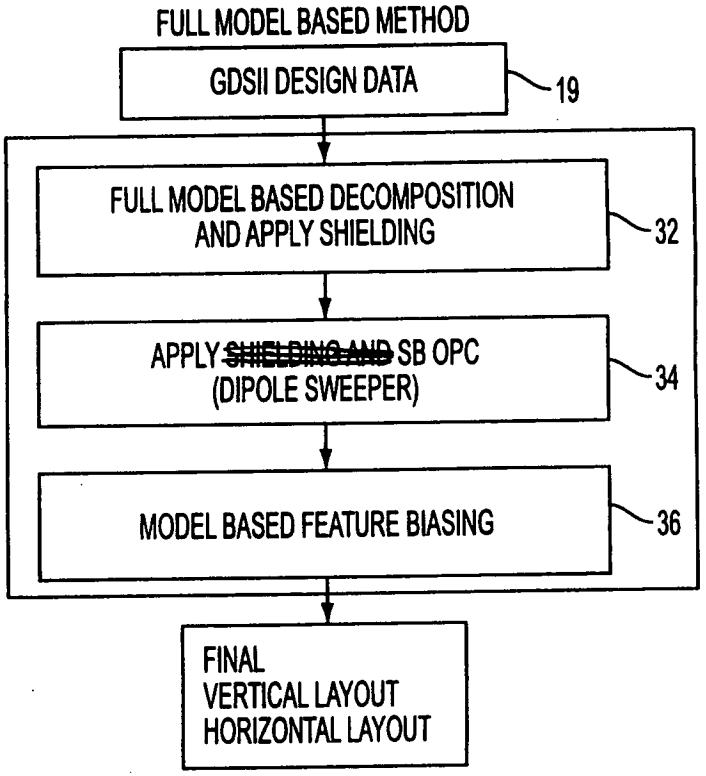

FIG. 3